

"Go care for him who has borne the battle, and for his widow and orphans."

The National Tribune.

(ESTABLISHED 1877.)

PUBLISHED WEEKLY.

ONE DOLLAR PER YEAR.

INvariably in Advance.

ADVERTISING RATES—FAT.

Guaranteed Weekly Circulation 100,000.

20c. per square line for display.

50c. per square line for classified columns.

50c. per line for reading notices.

60c. per line for Pension and Claim advertising.

Medical ads. admitted to Classified Columns only.

Special position, when granted, 20 per cent. additional.

Advertising can be canceled at any time five days before date of issue.

No discount for time or space.

Columns 2 1/2 inches wide; 2 1/2 inches long; seven columns to the page.

Sample copies mailed free on request.

THE NATIONAL TRIBUNE CO. (Incorporated), Proprietors.

ENTERED AT WASHINGTON POSTOFFICE AS SECOND-CLASS MATTER.

WASHINGTON, D. C., SEPT. 15, 1904.

Office: 325 Pennsylvania Avenue N. W.

Is THERE any joke in the Democrats in Maryland putting up Hill against Mudd for Congress?

THE Russian idea in sending forward the Baltic fleet is to find the Japanese fleet so crippled by its combats with the Russian ships and batteries that it can be easily overcome, and the Russian prestige restored. This looks well on paper, but it is a long way from the Baltic around two continents. Coal will be hard to get on the way, and there is no telling what condition the Russian fleet will be in when it reaches the Japan seas. The Russians must not hope to repeat the Oregon achievement.

THE hot air artists, who are describing the fighting in the Orient, at a distance of several hundred miles from the front, are surprisingly funny at times. For instance, in describing the Russian retreat:

"Some descriptions of the scenes along the line of retreat are almost incredible. They tell how the men lay down in the mud and slept in a drenching rain and without shelter."

How perfectly awful. Such a thing probably never happened in any war before, nor even to survivors, hunters or cowboys. It makes one's blood run cold to think of it.

For the first time in the history of the country the exports of manufactures have exceeded those of agricultural products.

The exports of iron, steel and copper have had a most remarkable growth during a period of 34 years. In 1870 the exports of iron and steel were only \$13,000,000, while this year they have reached \$111,048,598. Copper has risen from \$500,000 to \$57,000,000 since that time; mineral oils have increased from \$30,000,000 to \$72,000,000; leather from less than \$1,000,000 to \$33,000,000; cotton manufactures from less than \$4,000,000 to \$22,000,000; agricultural implements, from \$1,000,000 to over \$22,000,000.

THE Japanese give out an estimate of their losses, which bears intimate evidences of being fairly correct, though the proportion of officers killed and wounded seems rather small. It is that their total killed and wounded in 19 days' fighting is 17,539. If we could now have a good guess at the number of men they had engaged, we could get an accurate idea of the desperateness of the fighting. If they had as many as 200,000 men in line, this would show nothing like the bloody obstinacy of Gettysburg, Chickamauga or the Wilderness, where less than half that number sustained greater losses.

PRINCE FREDERICK LEOPOLD of Prussia has decided not to go to the Russian headquarters in Manchuria, "until the Russian prospects have so improved that his presence will not be so embarrassing."

That shows good German head sense. Gen. Kuropatkin has quite enough sense to have a Prince and his outfit kicking around under his feet and getting in his way. The Prince doubtless knows enough about war to understand that about the most uncomfortable place this side of the unmentionable pit is in the path of a beaten retreating army.

NEVADA is looking up very decidedly. For a long time each census showed a decrease in the population of the State, until in the last it appeared only 42,335, or less than that of a good average County in many of the States. This was only 4-10 of a person per square mile, as against Rhode Island, which has 407 people per square mile. At one time most of the people in the State left it, but now there are efforts being carried to success to irrigate some of the fruitful valleys in the State and tempt small-farmers, and ranchers, who will permanently build up the country. On top of this comes the news of an unusually large find of rich gold ore, and there seems to be limitless quantities of it. The information in regard to the gold ore seems to admit no doubt, and the probability is therefore strong that there will be such an increase in the State as will raise it to respectable dimensions.

It is hardly possible that Russia can recover from her awful collapse for a half century. The feature that will be most crushing to her pride is that she is today no longer recognized in Europe as a friend to be valued, or an enemy to be feared. She has been regarded as one of the greatest menaces of Europe, and Napoleon said that within a half century Europe would be either Republican or Russian. More than a half century has elapsed since Napoleon's time, and it has frequently looked as if Russia would spread all over Europe. Now Germany and Austria have been freed from the fear of Russian invasion from the East, and France, which has been coquetting with Russia to offset the "Dreihund" sees that Russia will not be any help to her in a collision with her neighbors. She has therefore taken time by the forelock and come into much better relations with Germany, Italy and England. Great Britain is also freed from her chronic fear of Russian aggression upon Turkey and advance upon Afghanistan and India. The whole European situation has been altered by the collapse of Russia as one of the potent factors in the situation.

THE GILLET BILL.

A measure more indefensible from most points of view than Mr. Gillett's bill to arbitrarily retire all Government employees upon reaching the age of 70 has seldom, if ever been presented to Congress. It was about as vicious a bit of generalization as can be imagined, and as inimical to true public policy as mercilessly ungrateful.

It was vicious in its generalization, because of assuming that the age of 70 inevitably brings marked diminution of men's mental powers. This is not borne out by observation of men in any of the ordinary walks of life. While it is true that many men show a marked mental decay at 70, a still larger proportion show an intellectual decline at 80, still more at 90, and still more at 100. In any given thousand of men a very large percentage will show a strong mental decline as soon as the first flush of youth is passed. Very many men lose their quickness, alertness, energy and readiness of comprehension as soon as they turn 30. This is because they are that kind of men. They get heavy, flabby, dull and listless. Others do not do this until they pass 40, and others as they turn the half-century mark.

It is the same way with their physical vigor. Of every 1,000 children born 250 die before reaching the age of six, one half before reaching the age of 16, and only one in 10 lives to be 65.

Take De Mours's famous law, for instance, which is the basis of all life insurance calculations. This is that of every 96 children born on the same day, one will die every year until all are dead.

Therefore one-half of them have decayed—mentally and physically—and died by the time they have reached 43. Consequently, if the hard-and-fast application of Mr. Gillett's age rule is made, one-half of the Government clerks ought to be permanently retired at 43. If they are not already dead they are suffering such mental and physical decay as to render them unfit for Government service.

At the age of 50 there should be but 36 of the original 96 retained, and so on.

Every observing man will say that this is absurd, for at 40 and 50 men are at their very best for mental work.

As a rule, long-lived people have unusual mental activity, and this does not share in the body's slow decay, but rather seems to ripen and improve with age.

Evidence of the truth of this can be found in any community where there are septuagenarians and octogenarians who are counted the brightest and shrewdest in the neighborhood.

The best proof of it is afforded by the Cabinet, the Supreme Court and the Congress of the United States, all of which are firmly controlled by men who are very near or past 70, and whose vigorous intellects hold their mastery in spite of the fierce competition of younger men.

In the civil service of the Government the confessedly ablest and most valuable men have as a rule passed their third score. In very many cases their long experience and training have made them almost indispensable to the Government.

Their years of service have given them a great advantage over younger men in their thorough knowledge—intimate familiarity—with every possible phase and feature of their official work. They accomplish much more in a day, because they know at once what to do and how to do it, while newer comers have to study out or be laboriously informed what to do. In the examinations in the Departments at Washington—conducted with no friendliness, to say the least, toward the older men—there are always numerous astonishing instances of old clerks making a percentage of from 95 to 100, where much younger men fall from 10 to 20 per cent. below that efficiency rating.

It would be manifestly very bad public policy to turn out summarily clerks and others whose knowledge and experience are essential to the rapid and correct transaction of business in the lines in which they have become experts.

It would be still worse public policy to turn out men who have been in public employ for years, for no other reason than they have reached 70. This would condemn the Government to get its clerks from an inferior class of men than seek employment on railroads and in other great corporations. To retain his place as long as he does his work well is one of the greatest inducements to a man in determining where he will offer his services. If he is not going to be treated as well by the Government as by a corporation, he will go to the corporation, and the Government will have to put up with a less desirable man.

All other civilized Governments have long ago settled down firmly to the rule that a life-tenure with a retiring pension when incapacitated is necessary to get the best men and the best service out of them. Mr. Gillett's bill simply slaps in the face the civil service ideas of every other Nation.

Our most particular concern is for the veterans of the war of the rebellion, and their widows, who would be more immediately affected by such a law than any other class. It ought to be termed "Bill for Weeding Union Veterans and Their Widows Out of the Public Service," for that would be its chief result. By the time it would be in operation a year or two, the dissatisfaction with it would be so pronounced that it would have to be repealed. In the meanwhile, however, all the veterans and their widows would be gone, and we know how hard it is to get a veteran reinstated, after he is once out and a younger man has gotten hold of his place and pay.

There are many ways in which the Civil Service can be improved, but Mr. Gillett's method has the least to recommend it, and the most to be said against it of any proposition yet made.

THE Russian reports say that for several hours each day at Liao-yang, the Japanese artillery fire averaged one shell a second, and rarely fell less than 20 a minute. A shell a second would be 3,600 a hour. If these shells with their cartridges averaged 10 pounds a piece the Japanese fired 18 tons of artillery ammunition per hour, or 108 tons in six hours. This was a good load for a train over the railroad upon which the Japanese must get all their supplies. Meanwhile the Japanese infantry must have been quite as active in getting rid of ammunition, so that altogether two or three train loads must have disappeared between meals, and then the army ate up a couple of trainloads of rations at each of the three meals. So that railroad had to do a very trying amount of business.

A SPLENDID MONTH'S WORK.

The report of the work of the Pension Bureau for the month of August is now out, and it is a most pleasing and creditable exhibit of the steadily increasing efficiency of the clerical force under Commissioner Ware's administration and of promptness in adjudicating claims.

The number of certificates of the different classes issued during the month was:

Invalid:

Original 2,758

Restoration 7,607

Renewal 21

Reissue 123

Supplemental 30

Additional 1,433

Total 12,207

Widows:

Original 1,887

Restoration 3

Renewal 14,729

Reissue 40

Supplemental 12

Increase 4

Total 2,009

Indian Wars:

Survivors 35

Widows 30

Total 65

Mexican Wars:

Survivors 46

Widows 60

Total 106

Duplicates 1,638

Grand total 16,328

To better appreciate this showing let us compare it with the work for August of the years immediately preceding:

August 1900 9,770

August 1901 8,524

August 1902 8,494

August 1903 14,729

August 1904 16,328

This shows that in the first year of Commissioner Ware he increased the work of the Bureau nearly 60 per cent, and in the second year he almost exactly doubled the Bureau's output of work in cases adjudicated, and certificates issued pensions allowed.

Next, we have a similarly gratifying exhibit of the efficiency of the Bureau in disposing of the accumulation of long-standing claims, and bringing its business up to date.

The following shows the number of unsettled claims on file in the Bureau at the different dates:

July 1, 1901 403,569

July 1, 1902 339,436

July 1, 1903 304,809

July 1, 1904 285,523

Aug. 1, 1904 271,243

Sept. 1, 1904 209,419

Therefore though new applications have been pouring into the Bureau at the rate of 20,000 a year, the number of undischarged claims has been reduced in 26 months from 339,436 on July 1, 1902, to 209,419 on Sept. 1, 1904—a reduction of 70,017, or at the rate of nearly 2,700 a month.

As Gen. Grant said of the Army of the Tennessee, "such a record as this is not an accident." It shows the steady, persistent, capable application of correct business principles and methods in the management of the Pension Bureau.

THE ARMY OF THE CUMBERLAND.

The Society of the Army of the Cumberland will hold its 32d Annual Reunion at Indianapolis, Sept. 20-21, with Headquarters at the Claypool. The business meeting will be held on the first day, the Reunion to take place in the evening, while the annual banquet will be on the 21st. That gallant veteran Gen. John C. Gurnea is the Chairman of the Local Committee, and the oration will be delivered by Hon. Orlando A. Somers, a private soldier, with Gen. Charles F. Manderson as alternate.

A most interesting feature will be the presence of Commander-in-Chief Blackman, who will speak at the public exercises. Gen. Blackman served in the Army of the Cumberland as a member of the 15th Pa. Cav., and he will have to make unusual efforts to be present, as he agreed to be with the Medal of Honor Men at Long Branch, and this will compel him to limit his stay at Indianapolis to one day, and immediately start for Long Branch. His presence at Indianapolis will enable a host of Grand Army men in the central West to meet him, and it will be a pleasant opportunity of which they will undoubtedly avail themselves.

It is expected that rates will be secured on a basis of a fare and a third. The question of selecting Chattanooga as the permanent meeting place and also to change the time of meeting from September to the middle part of October will be considered at the business meeting.

The Society, which is composed of both enlisted men and officers, does not confine its invitations to its own members, but cordially invites members of other armies to be present with them.

MUKDEN.

Mukden, the Capital of Manchuria, which is now passing into the hands of the Japanese and will probably be retained by them, is situated in the southern part of the great province and is on the River Liao, about 325 miles northeast of Peking. It was the capital of the present ruling caste of China when they were only Manchurian Tartars, and confined their rule to that province. It is therefore a very old city, and has a great deal of history connected with it. Near it are the tombs of the great men of the earlier history of the present reigning family of China.

The town is surrounded by a high wall of excellent masonry and is a parallelogram in shape. Outside are the suburbs, which stretch for a long distance, and which are protected by a mud wall. Inside the town is a third wall surrounding the Imperial Palace. The place has a population of about 250,000, and enjoys a very large trade with the surrounding country. There is a great deal of activity among the people, and the Scotch and Irish Presbyterians have made many converts. The city has a great number of fine temples. The best coal in that part of the Orient is found in the neighborhood of Mukden, and in great abundance. The place has several names, the Chinese calling it Shingking, which is its official name, while another name for it is Sheng Yang. Mukden is the old Tartar name for it, being called that by the ancestors of the present reigning family in China.

THE eastern war correspondents insist on saying the Japanese "advancement," Kuroki's "advancement," etc., when they really mean "advance." They remind one of the old fellow who conceived that "terminal" was a more elegant form than "terminus," and always went to the "terminal" of the railroad when he took a train. "Advance" is the proper term for an army's forward movement, and sticking "ment" onto the word neither makes it more forceful nor elegant.

THE BATTLE OF LIAO-YANG.

The operations in Manchuria, except at Port Arthur, seem over for the present, though it is likely that the Russians will continue their retreat to Harbin, and the Japanese will advance and take possession of Mukden. At the present moment both armies are so worn out by the great strain of the recent movements that a period of rest is imperative, especially to the Japanese, who have had to make exertions, straining every man in the army to the last limit of endurance. The great events of the fortnight have been:

1. Gen. Kuropatkin occupied a very strong position around Liao-Yang, which he had fortified with much skill and an enormous amount of labor. It was naturally a very strong position and the work upon it with the heavy guns which garnished it profusely, gave every promise that he could hold it against any number of men that the Japanese could bring. Probably any other European army than the Russian would have held to it. How many men he had in this position is the merest guess.

The correspondents and the official reports have it in the neighborhood of 200,000 men, but this is incredible. Our guess would make it less than 100,000. The Japanese probably had more men than the Russians, but not so many more. As near as can be found they had about 25 per cent. more.

2. The Japanese, bringing up three armies from different directions, successfully united them, Kuropatkin taking no advantage of his great opportunity to strike them in detail, but allowing them to push his outlying posts back on the roads on which they wanted to advance and unite. They spread all along his front, enveloped his right flank on the west; and then coming up around his left front until they struck the railroad in his rear, between him and Mukden. This was a most extraordinary thing to do in the face of a man professing to understand the art of war and having under his command anything like half the number of men Kuropatkin was reported to have.

3. These movements involved a series of what has been repeatedly termed as bloody battles, but which appear to have been nothing more than what we would term in our war artillery duels and skirmishing at long range. All the talk about fierce bayonet charges, hand-to-hand combats, and frightful mowing down of men by shrapnel and canister we can dismiss as creations of the heated brains of correspondents. The reports of the losses demonstrate this conclusively. While there is much talk of the Russians losing 20,000 to 30,000 men and the Japanese losing 30,000 to 40,000, the details do not bear out any such loss. A collision such as has been described there would have been inevitably a large number of prisoners taken. While both sides would naturally make the least of their own killed and wounded and greatly exaggerate the loss they inflicted upon their opponents, yet they would both as naturally make the most of the prisoners they have taken. So far in all the abandonment of Russian positions, in all the tumult of such an awful retreat as that the Russians had to make over but three muddy, rough, imperfectly-constructed roads, crowded with all their trains, the Japanese have not reported taking so much as a single Russian regiment. While the Japanese have accomplished wonders and are entitled to the highest credit for all that they have done, they have failed in their sanguine hopes of making a Sedan of it, as it looked at one time that they would do. Had they done so it would have ended the war and utterly ruined the Russian military prestige. On the other hand, Kuropatkin is entitled to the credit of partially offsetting the terrible blunders of the earlier part of his campaign and of having successfully extricated a large part of his army from imminent destruction. How much of it he has saved is another question. He claims to have brought off most of his guns, but this seems impossible. This could not possibly have been the case if the combatants had at any time been close together, and engaged at what could be termed short range.

4. The crippled condition of Kuropatkin, in men, guns, and ammunition has led him to continue his retreat to Harbin, where he must remain for some weeks or possibly for months until he can reëquip and reorganize. There he will have better railroad facilities to bring him men, guns, arms and stores.

5. The Japanese are also exhausted. They have suffered enormously in the absolute wearing out and breaking down of their men, as well as the loss in battle so that they are in no condition for an advance of any magnitude. They have probably fired away all their ammunition and broken their batteries down.

6. It looks now, as was foreshadowed by The National Tribune at the beginning of the war, that the Russians will make their main position at Harbin with the Japanese assuming theirs at Mukden. About midway between these places is a high ridge dividing the waters of the Sungari River, which flows into the Pacific from those of the Liao, which flows into the Liao-Yang Gulf. This ridge will probably be a division line between the Japanese and Russian armies, for some time. The Japanese will now bring about the fall of Port Arthur at the earliest moment, and the first great epoch of the war will end.

AMID all this verbal cyclone about infernal slaughter, the fighting around Liao-yang an occasional fact creeps out which gives us something of statistical value. One of these is the official report that division of Gen. Kondratievitch which formed part of the Russian right and sustained the brunt of the fight for 10 days from Aug. 26, lost 12 officers killed, 35 wounded, and one missing. The war strength of this division is about 16,000 men, therefore it would appear that this great number of men lost about as many men in 10 days' fighting as a little brigade of Americans of, say, 2,000 men would in an hour of what we termed a sharp engagement.

THE Women's Christian Temperance Union did a great work in Boston in dispensing lemonade among the marchers in the Great Parade. They had seven stands along the line of march, from which they served cooling refreshments and with each cup they gave a little souvenir, on which was the following inscription:

"In this cup there is no sin, no alcoholic poison, no disease, no death. With a free cup of lemonade, is the greeting of the W. C. T. U. of Boston and vicinity to the soldier."

SCIENCE AND INVENTION.

Work of the World's Busy Brains in Discovering, Inventing and Creating.

SCIENTIFIC NOTES.

The world's greatest geyser seems to be that at Roturua, in New Zealand. A recent visitor, J. A. Wardrope, states that it plays about 22 times each month, the "shots" often reaching a height of 900 to 1,200 feet, and the basin covers about two and a half acres. One theory is that loose stones fall into the neck of the tunnel filled with hot water, closing the passage until the rising steam pressure forcibly ejects them.

A queer development of the potato bug pest is reported from Massachusetts, where the bugs have stalled the cars on the Old Colony Street Railway. Since the setting in of cool weather the warmth of the rails has attracted the bugs, so that they swarm over the neighboring fields in such quantities that, when crushed under the wheels of the cars, they grease the track so badly as to prevent the cars from running.

Everybody who rides on a trolley car has noticed the crank which the motorman works so incessantly, and most people think that it must connect with a complicated set of machinery in the iron box below. This is a mistake; the crank is a controller, as it is technically named—is connected with a spindle upon which are disks that form connection with 13 wires which furnish the motive power. The motorman moving the controller has been likened to the opening of a spigot of a water pipe, when he wants a little power or an excessive force of the current. When the current strikes the controller it is a "fuse," and instantly the connection is broken. This startling event is not dangerous to anyone if they keep their seats. About the worst that can happen is that the motorman's clothes may be burned.

It has been noted that vessels may float down stream faster than the water. The explanation is that both the water and the floating object are being pulled down by gravity, but the water is much more retarded by friction.

From the latest earthquake data, it is inferred that the crust of the earth is not more than forty miles thick, and that the nucleus is more uniform in chemical and physical conditions than is usually supposed.

The United States Geological Survey is perfecting plans to have reports and records of well-boring in all parts of the country, to be sent to the Geological Survey. It desires all well-drillers and owners to send their addresses, samples, and records to the Survey at Washington, D. C. It will send the driller a copy of the report, and the owner a copy of the same, and a memorandum book for noting their borings. A report of the operations, with names, will be given at the end of each year.

The gypsum industry is growing rapidly in this country, and the product for 1903 was 1,041,707 short tons, valued at \$3,732,943. The gypsum industry is carried on in many States, and the principal ones, which, named in the order of their importance as producers, are Michigan, New York, Iowa, Texas, Ohio, Oklahoma, Kansas, Wyoming, Colorado, Utah, Virginia, California, South Dakota, Nevada, Montana, Oregon, and New Mexico.

Of late years there has been a great deal of discrediting lightning rods, both by scientific and practical men, and the general trend of opinion has been against them. The discrediting has been done by lightning-rod gangs, who have been making a boom from a committee of the National Fire Protection Association, which has been studying the matter for some time, and has come to the conclusion that lightning rods are not worth the farmer's money. Out of an average of 171,469 fires in a year 3,151 were caused by lightning, and they involved \$4,353,493, which the committee thinks might have been avoided if proper lightning-rods had been installed.

A PHOTOGRAPH TAKEN BY RADIUM.

(Sunset Magazine.)

A photograph made with a piece of ore containing radium, through the opaque shutter of a photograph plate-holder, is an interesting result of an experiment made in the Utah State Building at the St. Louis Fair, by S. T. Whitaker, Director-General of the State Exhibit. The ore is from Richardson, Grand County, where the mineral is being mined for commercial purposes. The Richardson ore is being used by the French experts who discovered the radium in ore which was first found in Bulgaria. Almost the entire output of radium is now obtained from American ores, and the mine at Richardson, Utah, has recently been purchased by a wealthy syndicate. Although the photograph taken by the radium ore was of the reproduction of the slide of the holder, it was obtained by simply placing the piece of ore on the shutter and leaving it over night.

MAKING RADIUM AVAILABLE.

Radium inflames the skin and destroys various kinds of life, but its place in medicine is yet to be determined. When it shall have been found useful, Dr. E. S. London, a Russian physician, proposes to make its energy cheaply available. Experimenting with various substances, he has shown that wool absorbs a large quantity of the radium emanations, and that the "emanated" wool produces physiological effects similar to those of radium itself. The wool, moreover, can be applied to any part of the body. Five or ten milligrams of radium may be made to energize a large quantity of wool, and as the radio-activity is retained a long time in chemically sealed vessels, "emanated" wool may be transported long distances, and may soon become a part of the pharmacist's regular stock in trade.

THE ELECTRIC LIGHT ON PLANTS.

The British Royal Horticultural Society is about to enter upon a series of extensive experiments as to the effect of electric light on plants, and the proposition brings out a protest from the humanitarians, that this will deprive the plants of their needed rest, which is secured since we do not grow plants for their sake, but our own. Electric lights have been tried very thoroughly in this country. It has been found that all plants can be treated alike, and investigation has shown that great deal of caution must be used in the application of artificial light. Every plant has its own way of responding to the stimulus. The life of the valley grows in the shade, the sickly and anemic, flimsy, and with thin and colorless petals. The electric light gave the flowers their natural creamy color, and made the leaves strong, firm, and green. Generally the natural colors of flowers are enriched by the light, and many plants which would wither in a high temperature without the light, with its aid flourish exceedingly. Melons, cucumbers, strawberries, mustard, carrots, beans, turnips, pears, and many other plants under the electric lamp long before the same plants under the daylight alone. But on the other hand, Professor Bailey, at Cornell University, and the authorities of the West Virginia Agricultural Station, have found that while cauliflower will grow very tall under electric light, they have smaller heads, and radishes develop extraordinary profusion of "top" under the influence of the lamp. As we do not prize the cauliflower for its stature, or the radish as a foliage plant, these advantages are not worth the cost of producing them. Nearly all flowers are found to bloom sooner and with brighter colors. Lettuce reaches its mark from four to ten days earlier, but some plants run to seed and others cannot live.

SCIENCE AND INVENTION.

Work of the World's Busy Brains in Discovering, Inventing and Creating.

SCIENTIFIC NOTES.

The world's greatest geyser seems to be that at Roturua, in New Zealand. A recent visitor, J. A. Wardrope, states that it plays about 22 times each month, the "shots" often reaching a height of 900 to 1,200 feet, and the basin covers about two and a half acres. One theory is that loose stones fall into the neck of the tunnel filled with hot water, closing the passage until the rising steam pressure forcibly ejects them.

A queer development of the potato bug pest is reported from Massachusetts, where the bugs have stalled the cars on the Old Colony Street Railway. Since the setting in of cool weather the warmth of the rails has attracted the bugs, so that they swarm over the neighboring fields in such quantities that, when crushed under the wheels of the cars, they grease the track so badly as to prevent the cars from running.

Everybody who rides on a trolley car has noticed the crank which the motorman works so incessantly, and most people think that it must connect with a complicated set of machinery in the iron box below. This is a mistake; the crank is a controller, as it is technically named—is connected with a spindle upon which are disks that form connection with 13 wires which furnish the motive power. The motorman moving the controller has been likened to the opening of a spigot of a water pipe, when he wants a little power or an excessive force of the current. When the current strikes the controller it is a "fuse," and instantly the connection is broken. This startling event is not dangerous to anyone if they keep their seats. About the worst that can happen is that the motorman's clothes may be burned.

It has been noted that vessels may float down stream faster than the water. The explanation is that both the water and the floating object are being pulled down by gravity, but the water is much more retarded by friction.

From the latest earthquake data, it is inferred that the crust of the earth is not more than forty miles thick, and that the nucleus is more uniform in chemical and physical conditions than is usually supposed.

The United States Geological Survey is perfecting plans to have reports and records of well-boring in all parts of the country, to be sent to the Geological Survey. It desires all well-drillers and owners to send their addresses, samples, and records to the Survey at Washington, D. C. It will send the driller a copy of the report, and the owner a copy of the same, and a memorandum book for noting their borings. A report of the operations, with names, will be given at the end of each year.

The gypsum industry is growing rapidly in